

AQUIFER EXEMPTION SUMMARY SHEET

Applicant: **ERG RESOURCES, LLC**

Exemption Description:

ERG proposes to exempt a portion of the Sisquoc formation in the **Cat Canyon Oil field**.

The proposed aquifer for exemption is the **Sisquoc formation**. The area and zone proposed for exemption is located in an area historically developed for oil production. The Sisquoc zone is currently exempted in certain areas in the field under the Memorandum of Agreement between the Division of Oil, Gas and Geothermal Resources (Division) and EPA Region 9 (Primacy Agreement). These exempted areas are described in **Appendix A** – Cat Canyon Oil Field Maps and Data Sheets from the Division Publication “California Oil and Gas Fields, Volume I”, published in 1973. The proposed area for exemption is hydrologically connected to the currently exempted areas.

The area of the proposed exempted aquifer is described with the following:

- Portions of SW/4 of the SW/4, NE/4 of the SW/4, E/2 of the NW/4, NE/4, E 2/3 of the SE/4 of Section 24, T9N/R33W MD B.M.
- SW/4, SE/4 and portions of the NW/4 and the W/2 of the NE/4 of Section 25 T9N/R33W
- Portions of the NE/4 of the NW/4, NE/4 and NW/4 of the SE/4 of Section 36
- Portions of the SW/4 of Section 30
- NE/4 of the NW/4 and portions of NW/4 of the NW/4, SE/4 of the NW/4, NE/4, SE/4 and E/2 of the SW/4 of Section 31, T9n/R32W
- Portions of the NW/4 of the SW/4, SE/4 of the SW/4 and SW/4 of the SW/4 of Section 32, T9N/R32W

These areas are shown in **Maps 1 and 2**. Map 1 shows the whole Cat Canyon Oil field, its administrative boundaries, and the productive limits in the field. The hashed areas coincide with the 1973 Vol. I exempted areas. The new productive limits with a buffer are described by the additional shaded areas in the map. Map 2 shows the wells in the field, the ERG leases, the 1973 Vol. I shaded areas (dark shade - exempted) and the proposed additional areas for exemption (enclosed in red areas with lighter shade). The proposed areas for exemption coincide with the Vol. II hydrocarbon productive limits described in **Appendix B**, “California Oil and Gas Fields, Volume II”, published in 1992 and available in the Division website.

The aquifer requested for exemption is the portion of the Sisquoc oil sands that is found below the overlying, confining Sisquoc mudstone layer. The Sisquoc mudstone layer divides the Foxen sands from the confined Sisquoc saturated oil sands.

The average depth of the exempted aquifer is approximately 2000 ft below ground surface (below the base of the Sisquoc mudstone). The Underground Source of Drinking Water (USDW) for this area is located in the Careaga sands, which are overlying the Foxen formation. (Please refer to cross-section maps in **Maps 3,4 and 5**).

The produced water effluent from the oil and gas operations would be injected into existing, permitted wastewater disposal wells located on ERG's Los Alamos Lease. These wells are located within the boundaries of the 1973 exempted aquifer in the Monterey formation, which lies under the base of the Sisquoc formation.

Justification for Exemption:

(X) Aquifer is not a source of drinking water and will not serve as a source of drinking water in the future because it:

(X) Has a TDS level above 3,000 and not reasonably expected to serve as a source of drinking water

(X) Is producing or capable to produce hydrocarbons

() Is producing or capable to produce minerals

() Is too deep or too remote

() Is above Class III area subject to subsidence

() Is too contaminated (name contaminant (s)): _____

() Other: _____

Purpose of Injection: **Enhanced Oil Recovery process (cyclic steaming). A process flow diagram is shown in Appendix C.**

Injected Fluid Quality: **TDS < 10 ppm**

Injected Fluid Source: **Treated produced water from existing oil and gas wells. Treated produced water will be converted to steam for enhanced oil recovery. (see Appendix C)**

Formation Water Quality: **TDS ~8500 ppm**

Oil or Mineral Production History: **Since the early 1900's to present. Actual production data is available from the Division website with the link:
<http://opi.consrv.ca.gov/opi/opi.dll>**

Active Injection Wells Injecting into Same Formation

Field	Location	Injection Interval	Injection Source	Total Depth
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Existing injection wells are injecting into the Monterey formation in the currently exempted areas.

Water Use In Area: **Potable drinking water source in the water-bearing zones of the Careaga sands. Map 6 shows the location of the freshwater wells in the field.**

Remarks: _____